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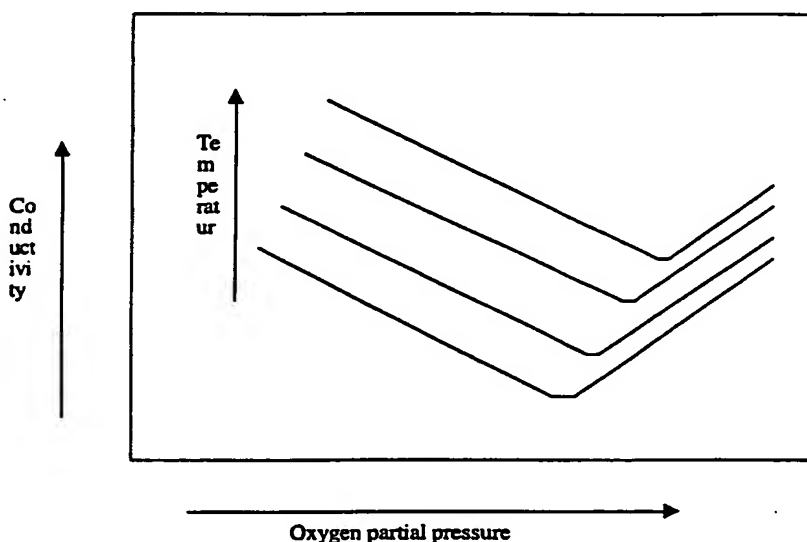
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(54) Title: EXHAUST GAS OXYGEN SENSOR



(57) Abstract: The present invention identifies a formulation for a subgroup of perovskite structure oxides that overcomes the outstanding problems for oxygen sensing in a combustion environment. The sub group has a formula ABO_x where A is a large 3-valent ion, such as Pr^{3+} , B is a transition metal ion, which is substituted to a small degree by tungsten (which has a stable valence of 6), and x indicates that the oxide can sustain a variable oxygen stoichiometry. A preferred general formulation is a single-phase perovskite structure $AB_{1-y}W_yO_x$ where y preferably lies between 0.03 and 0.15, more preferably between 0.05 and 0.10 and where x is close to 3. Preferred examples of compositions that can achieve these advantages include, but are not limited to, $PrFe_{0.95}W_{0.05}O_x$ and $LaFe_{0.05}W_{0.05}O_x$.



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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,447,705 A (PETIT et al) 05 September 1995 (05.09.1995), column 1 line 50 through column 2 line 39.	1-13
Y	US 4,542,640 A (CLIFFORD) 24 September 1985 (24.09.1985), column 7 line 58 through column 8 line 10, column 9 line 14 through column 10 line 5, and column 11 line 61 through column 12 line 16.	1-13
A	US 4,110,254 A (LAUDER) 29 August 1978 (29.08.1978), see abstract and columns 2-4.	1-13
A,P	US 2003/0121801 A1 (INABA et al) 03 July 2003 (03.07.2003), page 2.	1-13

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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